

# World Rainforest Report

• Autumn 1986 •

## Prospects for Tropical Forests Brighten

**T**oday, Monday 28th of July, the Council of the controversial International Tropical Timber Agreement resumes negotiations over the formation of the International Tropical Timber Organization. For the past year, talks between the major consumers and producers of tropical timber have been stalemated, as nations from South America, Africa, Asia, North America and Europe argued over the precise location of the headquarters for the new Organization and the nominee for its Executive Director. The reconvened meeting will run from 28th of July to the 1st of August.

Friends of the Earth International 'warmly welcome' this resumption of negotiations, as it is believed to herald the crumbling of the political deadlocks which have prevented the ITTO from emerging as an effective force to bring about the sustainable management of tropical forests and the conservation of their irreplaceable genetic resources. The meeting will be the third full Council meeting in twelve months. Earlier in the year, the forty-one countries who have ratified the ITTA had agreed not to meet again until there was a real prospect of deciding between Yokohama, Jakarta, and Amsterdam as the site for the

ITTO's new headquarters. It is widely believed that the necessary majority amongst consumer and producer countries has agreed that Yokohama should be chosen.

Prospects for tropical forests will improve considerably when the

timber reforestation...

\* To encourage the development of national policies aimed at sustainable utilization and conservation of tropical forests and their genetic resources, and at maintaining the ecological balance in the regions concerned.

*"...it is believed to herald the crumbling of the political deadlocks which have prevented the ITTO from emerging as an effective force"*

ITTO is formed because the International Tropical Timber Agreement is the first international commodity arrangement to openly recognize the value of conservation by promoting rational and sustainable development of a basic natural resource - tropical timber. Along with improving forest research and diversifying the trade in tropical timber on a co-operative international basis, the Agreement explicitly states in Article 1 that its function is:

\* To promote and support research and development with a view to improving forest management and wood utilization...

\* To encourage members to support and develop industrial

Earlier this year Friends of the Earth International and the International Institute for Environment and Development wrote to over thirty producer and consumer governments who had ratified the Agreement warning that the rapid depletion of tropical moist forests left little time to agree on practical policies. Charles Secret of FOE/UK stressed that the time to act is now, for soon there would be no forests left in tropical countries.

It is hoped that the ITTO will serve as an international forum on tropical deforestation in much the same way that the International Whaling Commission focused international pressure on whaling.

## Breakfast Under Threat

Tea, coffee, Rice Krispies, Corn Flakes, toast, marmalade (orange, lime or lemon), orange/pineapple juices, bananas, grapefruit, sugar, cocoa, tomatoes, pepper, eggs - all these foods and drink originate from wild plant and animal species found in tropical forests. Even bacon will soon make the connection - a wild pig from South-east Asia, the babirusa, has significant potential to improve the breeding performance of farmed pigs. (Chickens have already been interbred with jungle fowl).

The problem is that tropical forests are being destroyed so rapidly that many wild species are becoming extinct (reliable authorities estimate one every few hours) threatening the wild stocks, and their unique germ plasm, which commercial plant and animal breeders depend upon to improve yields, taste and flavor, and strengthen resistance to disease, pest attack and adverse climatic conditions.

For instance, large areas of wild cocoa habitat in Colombia, Ecuador and Peru have already been devastated by petroleum exploration companies and subsequently by colonization schemes. In South-east Asia



## Tropical Forest and the Hamburger Connection

Story inside





## Tropical Rainforests And the "HAMBURGER CONNECTION"

by Jay Moore



The typical hurried lunchgoer who bites into a Whopper is not alone in unknowingly contributing to the destruction of distant tropical rainforests. The same applies to the investor who purchases fast-food stock.

Since *Good Money's* July/August 1985 issue, which featured an article on current changes in the fast-food industry, readers have written to ask us about the alleged "hamburger connection." The facts in this matter are not easy to pin down. What follows is an effort to bring together some of the most pertinent information based on our reading of the literature and our discussions with several experts.

One fact is indisputable: The earth's rainforests are disappearing at a truly staggering rate. The United Nations has conservatively estimated that 50 acres or more are lost through some form of human activity every minute. Only about one-half of the original rainforest is left; India, Bangladesh, Haiti, and Sri Lanka have lost all their primary rainforest. Even more alarming is that most of this destruction has occurred in the last 30 to 40 years; if present trends continue there will be very few large tracts left anywhere at all by the end of the century. Once cut, they rarely regenerate.

Particularly in Central America, vast areas of former rainforest have been turned into ranches for the raising of cattle; beef from those ranches is shipped in large lots to U.S. ports, where it is repackaged and given a USDA label. Subsequently, its origins become difficult to trace. Brokers and middlemen may sell the repackaged meat to fast-food chains. Since the meat from Central America often seems too lean for North American palates, it is mixed somewhere along the line with fat trimmings from grain-fed U.S. beef. What emerges is a hybrid product. The total amount of Central American beef finding its way north may represent less than 2% of total fast-food

The second largest U.S. hamburger chain, Burger King, has been singled out frequently by its indifference to this issue. One activist group, *Earth First!*, has suggested a Burger King boycott and has organized picketing outside Burger King restaurants in some parts of the country. In a letter to San Francisco's *Rainforest Action Network*, Burger King admitted using

some rainforest beef: "It would be our preference that our packers use all domestic beef and for the most of 1982-83 they did. However, when insufficient lean beef at affordable prices becomes a problem, the packers must turn to other approved USDA sources such as Costa Rica." The principal owner and franchiser of Burger King is the *Pillsbury Corporation*, which also operates the *Bennigan's* and *Stake and Ale* restaurants.

The *Marriott Corporation*, a recent industry "comer" bought out *Burger Chef* in 1983; it has admitted to the use of rainforest beef in its *Roy Rogers*, *Hot Shoppe*, and *Bob's Big Boy* restaurants.

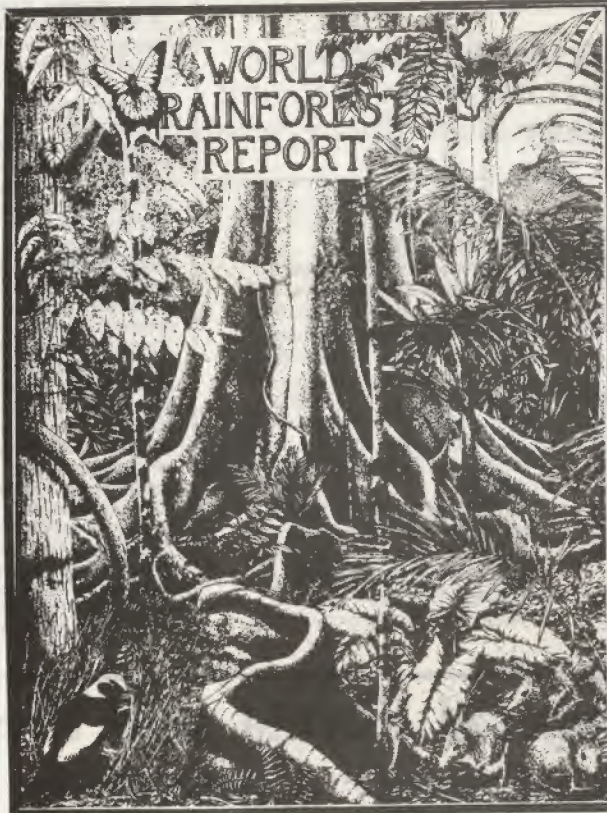
On the other hand, *McDonald's*—the largest chain—claims vociferously that it uses only U.S. beef. *McDonald's* threatened to sue the West German magazine *Natur* unless it retracted allegations by scientist Norman Myers that *McDonald's* was receiving beef from Central America. (Another chain, *Jack-In-The-Box*, threatened a similar lawsuit.) It should be kept in mind, however, that *McDonald's* is a true multinational, with operations in 34 countries including most of those in Central America and the Philippines. In line with its stated policy of encouraging local sources of supply, it does use local beef there for its hamburgers.

*Wendy's*, in a statement solicited by *Good Money*, strongly asserted that it uses only U.S. beef. Information for *A & W* (United Brands), *Dairy Queen*, and *Taco Bell* (*Pepsico*) is either inconclusive or unavailable.

recently by the addition of the *McDonald's Corporation* to Dow Jones hallowed list of blue-chip indicators. *Business Week* (November, 18 1985) report that fast-food companies seen as undervalued may be the next acquisitions in the war of corporate takeovers.

What should the ethical investor do who wishes to purchase fast-food stock? We asked this question of Doug Shane, the author of a 1979 U.S. State Department Report, "Hoofprints on the Forest," Shane has studied corporate involvement extensively; his advice was that investors should avoid fast-food hamburger companies altogether. The relationships, he felt, were too uncertain and intricate for one to be totally sure of making the right decision.

(This article was adapted from an article that appeared in *GOOD MONEY* in March-June 1986).



## a list of bad guys

Many other companies besides those with fast-food outlets have been implicated in the "hamburger connection." The *Campbell's Corporation*, for instance, has admitted using rainforest-derived beef in its soups, canned chilies, baby food, and Swanson TV dinners. At the other end of the connection are the cattle-raising companies themselves. In Brazil, the Texas-based *King Ranch* owns 180,000 acres for cattle production. Oddly, one of the worst offenders may be *Volkswagen*, with its enormous Brazilian cattle ranch.

The following list of corporations, banks, and agencies sharing some responsibility for the problems was compiled by expert Douglas Shane and given by him in Congressional testimony:

- Austria- Georg Markhof
- Belgium- ADELA Investment Company
- Canada- Briscan
- Costa Rica- Agrodinamica Holding Company
- France- International Chamber of Commerce (Paris Hdqts.)
- Great Britain- Barclay's Bank BCN
- Italy- Liquigas
- Japan- Jamooka Reality
  - Kanamatsu Goshu
  - Marubeni
  - Nichimen and Grupo Bradesco
  - Tsuzuki Spinning
- Nicaragua- CARNIC (under Somoza regime)
- Panama- Ester Research Instruments
- Panama/U.S.A.- Latin American Agribusiness Development Corporation
- Switzerland- John W.H. deBuys Roessingh
- West Germany- Commerzbank A.G.
  - Gestrus Reemstam
  - Mercedes Benz
  - Volkswagen
- U.S.A.- Albertini International
  - Armour
  - Blue-Spruce International
  - Brazilian Land Cattle
- Packing
  - Castle and Cooke
  - Caterpillar
  - Chamber of Congress
  - Council of the Americas
  - Deltac International
  - Dow Corporation
  - Export-Import Bank
  - Heublein
  - International Foods
  - International Packers
  - International Research
  - Le Tourneau
  - Massey-Ferguson
  - McDonald's
  - National Bulk Carriers
  - Ogden
  - Organization of American
- States
  - Overseas Private Investment Corporation
  - Peace Corps
  - Ralston Purina
  - Seminole Steel Erectors
  - SIFCO Industries
  - Standard Brands
  - Swift
  - Twin Agricultural and Industrial Developers
  - United Brands





# FOR THE EARTH

Not everyone can adjust their lives to spend all week, without payment, working to protect the worlds rainforests. Not everyone can, at short notice, travel to help organise protests about rainforest destruction.

But those who can do these things need your support to continue their work. The Rainforest Information Centre is a totally voluntary organisation - no bureaucrats, no salaried staff, no government grants, no rent, and minimal overheads. This means that your money goes straight to where you want it. Some organisations have to meet a payroll of tens or hundreds of thousands of dollars before a cent gets spent on campaigns. Not with us.

DONATIONS...to the Rainforest Information Centre are tax-deductible within Australia by making them out to the Australian Conservation Foundation, (672b Glenferrie Rd. Hawthorn 3122) and asking that they be used for the purposes of the Rainforest Information Centre.

## WORLD RAINFOREST REPORT.....

This is the journal of the world rainforest network, and the best source of rainforest news around.

SUBSCRIPTION PRICE for four issues - \$10 - Australia; \$15 elsewhere- a great gift! Back issues available at \$2.50 each.

### SUBSCRIBE NOW!

Hundreds of copies of World Rainforest Report and other rainforest publications are sent out free to third world environment groups and individuals. If you can support this work, please do so.

## BUMPER STICKERS..... FREE.....

We have the following bumper stickers available free thanks to a friends generosity. Let us know which ones you want. Send donation for postage.

EARTH FIRST!

THINK GLOBALLY ACT LOCALLY

SUBVERT THE DOMINANT PARADIGM

SAVE OUR RAINFORESTS - THE WOMB OF LIFE

OUR LAST RAINFORESTS - COHEN, GOIN' GONE



DAINTREE - LET IT BE OUR CHILDREN'S FOREST

STUDENTS FOR RAINFORESTS.

WOMEN FOR RAINFORESTS.

SURFERS FOR RAINFORESTS.

FARMERS FOR RAINFORESTS.





# ARTWORK by DAILAN

Dailan Pugh's exquisite rainforest artwork is a feature of World Rainforest Report, and many other publications. We offer a range of goods with this delicate forest art.

## A GREAT NEW DAILAN POSTER:

The Rainforest Cathedral, as featured in reduced form as the cover of World Rainforest Report 7. A view from ground to upper canopy from inside a giant strangler fig. new big size - 62cm by 42cm. \$4.00 or \$6 laminated.

Also two line drawings of rainforest 42cm. x 30 cm. \$3 or \$4 laminated. Price includes postage within Australia. Overseas postage extra)

**STATIONARY SETS:** Trimmed with Dailan's rainforest line drawings. 10 sheets, 10 envelopes, high quality \$5



(reduced size 344)

## GREETING CARDS...

1. Small marsupials (Brown Antechinus)
  2. Satin Bowerbird, male displaying to female
  3. Leaf-tailed Gecko with Pothos vine.
  4. Grey-headed flying fox
- set of four, \$2, or 60c each & postage

AVAILABLE FROM: THE RAINFOREST INFORMATION CENTRE P.O. BOX 368 LISMORE NSW. 2480. AUST.



# TOO HOT TO HANDLE!

## GIVE TREES A CHANCE

VHS Video cassette - \$50

The story of the campaigns to create the Nightcap National Park (now listed as World Heritage!)

Unsolicited Testimonial from Ron Haynes, President of Programs, Channel 9:

"...Thank you for sending me your cassette entitled "GIVE TREES A CHANCE." I appreciate your comments that it was considered 'too political' to play when it was produced back in 1979, but unfortunately, I have to say that it is still that aspect which concerns me regarding its success on commercial television in 1986..."

## THE AUSTRALIAN NON-BUYERS GUIDE

Listing the domestic products of the nuclear industry, environmental destruction, and trade with South Africa. Complete with shopping cards, stickers, and free update. \$5.

Ever wonder why all those West Papuans are seeking refuge in PNG? We have a dozen or so copies of the TRANSMIGRATION issue of THE ECOLOGIST. A must for anyone who wants to know what's going down in Indonesia. \$8 incl postage

## THE GAIA ATLAS OF PLANET MANAGEMENT

The most important book of the year Get it for yourself, for your kids' school, for your local library. \$25 plus \$4 postage.

## EARTH FIRST!

The radical environment journal from the USA. The one that the leader of the NSW National Party singled out for attack under Parliamentary privilege. Find out why. Send \$2 plus \$1 postage for a sample issue. It's GREAT!

## THINKING GLOBALLY, ACTING LOCALLY

60 minute cassette tape of the direct actions in N.S.W. which led to the preservation of our rainforests - documentary with original music. \$7.00 inc. postage

The U.S. environment journal, Earth First! said in its review of this tape: "It is professionally done. The music is superb. But it is the emotion, the commitment, the inspiration that floors you when you listen to it. Our sisters and brothers of Earth First! Australia are several years ahead of us in the experience of direct action to save wilderness. We can learn much from them. We can be inspired by their courage, by their love for the Earth."

AVAILABLE FROM: THE RAINFOREST INFORMATION CENTRE P.O. BOX 368 LISMORE N.S.W. 2480. AUSTRALIA



# The RAINBOW COLLECTION

Get double value from your giving - the gifts you buy from RIC not only give pleasure to the recipients, they help our work to continue - an added bonus for those who care about the planet

## T-SHIRTS, SINGLETS and SCARVES.



THE IMAGES SHOWN HERE  
ARE AVAILABLE ON  
"ALL COTTON" SINGLETS  
AND T-SHIRTS



EACH SHIRT IS DYED WITH THE  
COLOURS OF THE RAINBOW AND  
AN IMAGE OF YOUR CHOICE IS  
PRINTED ON THE FRONT IN BLACK

ALSO AVAILABLE ARE:  
RAINBOW SHIRTS WITHOUT IMAGES  
AND ALL-WHITE SHIRTS WITH  
AN IMAGE ON THE FRONT

WE ALSO MAKE THE EVER-POPULAR  
MUSLIN RAINBOW SCARF 110 CM. LONG



T-SHIRTS	RAINBOWS	\$16
	WHITE	\$12
SINGLETS	RAINBOWS	\$14
	WHITE	\$10
MUSLIN RAINBOW SCARVES		\$5

### INDIAN SARONGS - SCARVES

We also have some beautiful sarongs  
and scarves from India. Choice of  
colours, all with gold thread  
trimming. \$10 AND \$7.



# Tropical Forest Foods

**CEREALS** - rice (South-east Asia), maize (Central America), millet (Africa), wheat (southern Asia).

**FRUITS** - banana, orange, lemon, lime, tangerine, grapefruit and pumello (South-east Asia), mangosteen and durian (Malaysia), mango (India), pineapple and granadilla (Brazil), papaya, guava and sapodilla (Central America), cherimoya and soursop (tropical America), naranjilla and feijoa (South America).

**OILS** - oil palm (West Africa), babussa palm (Brazil).

**BEANS** - winged bean (New Guinea), mung bean (India).

**SWEETENERS** - sugar cane (South-east Asia), and natural sweeteners like katempfe (West Africa), stevia (South America).

**CHEWING GUMS** - guar (Africa), chicle (Central America).

**OTHERS** - bamboo and sago palm (South-east Asia).

**ANIMALS** - jungle fowl (India and West Africa); with breeding potential for kouprey with cows and babirusa (South-east Asia).

**ROOTS AND TUBERS** - cassava/tapioca (Brazil), sweet potatoes (South America), yams (South-east Asia, Africa and tropical America), taro (South-east Asia), tannia (tropical America).

**BEVERAGES** - coffee (Africa), tea (South-east Asia), cocoa (Brazil).

**NUTS** - cashews (tropical America), brazil (Brazil), kola, sesame (West Africa), groundnut/peanut (South America), coconut (South-east Asia).

**VEGETABLES** - avocado (tropical America), aubergine/eggplant (India), breadfruit/jackfruit, wax gourds (South-east Asia).

**SPICES** - ginger, cardamon, cinnamon, cassia, (South-east Asia), pepper (India), cloves (Indonesia), nutmeg, mace (Mollucas), pimento, vanilla (Central America).

## Breakfast Under Threat

Cont'd

also at risk, including wild rice, mangoes, citrus fruits, tomatoes and breadfruits.

According to a global study carried out by the United States National Academy of Sciences (1980), by the year 2000 Latin America's tropical forests could lose up to one-third of their species total (1 million species estimated at present), Asia's forests at least two-fifths of their total (estimated three-quarters of a million), and Africa's over one-eighth of their total (estimated one-third of a million) because of deforestation. To date, Latin America has lost 37% of its original tropical forests, Asia 42% and Africa 52%.

Currently, Brazilian Amazonia is losing 14,000 sq.km. of rainforest every year (a rate which has doubled in 5 years according to LANDSAT photos), and West Africa's rainforests have a half-life of just 13 years, according to the UN Food and Agriculture Organization (1982). Globally, at least 150,000 sq.km. of tropical forests (39 million acres) are destroyed every year - or 750,000 acres every week (FAO, 1982).

Friends of the Earth International, in order to mobilize the political and popular action necessary to curb the destruction, have written today to all political leaders of industrial and tropical countries urging them to implement a

Tropical Forest Action Plan, prepared by the World Resources Institute, the World Bank and the UN Environment Program, and invest \$8 billion over the next 5 years to protect threatened forests and their irreplaceable genetic resources, and establish sustainable agriculture and forestry schemes to meet the needs of developing countries. Individual FOE national and local groups in over 30 countries (FOE-USA?) will send out information packs to their communities stressing the many ways people wherever they live depend on foods from tropical forests.

Charles Secrett, FOE International Forest Coordinator, stated: "These forests are the most precious resource in the world. To destroy them and their irreplaceable genetic materials as we are doing is utter folly. The world seriously runs the risk of depleting the main source of staple foods which keep people alive, as well as delicacies which simply taste good."

Charles Secrett, Simon Counsell or Niall Mitchell at FOE (01-837-0731, four lines)



In 1954, the government of Guatemala's newly elected President Jacobo Arbenz was overthrown in a coup planned and financed by the US Central Intelligence Agency. The country's blossoming democracy had come into conflict with United Fruit Company's (UFC) control of a precious natural resource: land. UFC, the world's leading banana producer, owned over 550,000 acres, planting only 15% at any one time. Arbenz instituted an

agrarian reform law that would have redistributed about half of UFC's non-producing holdings to landless peasants. Recently declassified documents show that Secretary of State John Foster Dulles and his brother, CIA director Allen Dulles, both had strong personal ties to United Fruit and worked successfully to overthrow the Arbenz government.<sup>9</sup>

After Arbenz came 30 years of military dictators. Peasants who would have bene-

fitted from Arbenz's voluntary land reform found themselves participants in the military's enforced "land reform", which, instead of redistributing prime farm land, attempted to ease social tensions by building roads to help colonize Guatemala's rainforest. Cattle ranchers followed closely behind the colonists, pushing them deeper into the receding rainforest.<sup>9</sup>

Desperately poor, these peasants organized to resist forced removal by cattle ranchers. In the 1960's discontent ripened into rebellion, and a guerrilla movement grew rapidly at the edge of the rainforest. In the northeastern departments of Zacapa and Izabal the Guatemalan Armed Forces used napalm against the guerrillas in an attempt to clear them from the agricultural frontier. It is estimated that the armed forces and death squads killed six to eight thousand people in a two-year campaign designed to destroy a guerrilla insurgency of 500 combatants.<sup>10</sup>

This counter-insurgency campaign, which extended pasture land on the agricultural frontier, gave military officers the opportunity to acquire cattle ranches. For example, Colonel Carlos Arana, a US-trained counter-insurgency commander who later became President of Guatemala, and who earned the title "Butcher of Zacapa" for his violent role in clearing peasants from the frontier, received a large

ranch in return for his services. The "hamburger connection," so often spoken of by US environmentalists, takes on an added dimension once its military roots are unearthed.

Guatemala's generals were not the only ones interested in the area. The Inter-American Development Bank, the World Bank, the US Agency for International Development (US-AID), the US Export-Import Bank and private interests all invested millions of dollars to build roads and develop this area rich in oil, nickel and hydroelectric potential known as the "Northern Transversal Strip" or the "Zone of the Generals." Economist Robert Williams writes that "for the multinational corporations, the main attraction of the roads was in facilitating the exploration, extraction, transportation and processing of minerals. For army officers, government officials and other Guatemalans close to the government, the roads meant the opportunity to become cattlemen."

Excerpted from EPCOA Green Paper #3, Environmental Project On Nicaragua  
13 Columbus St.  
San Francisco, Ca 94111



## Four color rainforest poster

Created for Earth First! and the Rainforest Action Network by San Francisco artist Ray Regan and printed on %100 recycled paper. This can be yours for any donation to Earth First! or the Rainforest Action Network, or \$1.00 each for bulk orders. Make checks payable to:

Earth First!  
Box 83,  
Canyon CA 94519



## BOOK REVIEWS

### RAONI: THE RECORD OF ANOTHER VANISHING CULTURE

The following is an excerpt from the *New York Times* by Vincent Canby. *Raoni* is a sobering, sympathetic, technically expert documentary on the complex issues surrounding the survival of the indigenous Indian tribes of north central Brazil. It's a story that is still being written. After this film was completed in 1979, angry Indians massacred workers commissioned to clear jungle lands considered by the Indians to be their own. Produced, directed, and written by Jean-Pierre Dutilleux, with a commentary spoken by Marlon Brando, *Raoni* focuses principally on the Mekronoti chief whose name gives the film its title. The Mekronoti and the other Brazilian tribes are up against the same problems that faced the North American Indians in the 19th century as the United States rushed toward development. Agreements that give them permanent title to their lands are abrogated as soon as those lands are deemed necessary for the advancement of civilization. The point is also made that this is a problem of international concern, since the Amazonian jungle, in its present natural state, produces an estimated 25 percent of the world's oxygen supply.

Mr. Dutilleux and his associates record in sometimes intimate detail the daily life and special rituals of the Mekronoti. They're also on hand for one meeting at which a tribesman solemnly suggests murdering the filmmakers, who are, he argues, representatives of the civilization that's killing them. *Raoni*, a wise, forceful little man who isn't ignorant of public relations, puts stop to that idea. He successfully argues that the filmmakers can carry the Indian's message to the world. The final sequences of the movie appears to offer some hope for the Indians as *Raoni* and other chiefs receive a pledge from the Brazilian Government representatives to define the borders of Indian territories. Onscreen, *Raoni* promises that any "invaders" will be killed, which is what happened a year later. The CinemaScope photography is excellent, and Mr. Brando's commentary informative and to the point. The star also appears briefly at the start of the movie, discussing Indian problems with two American Indians in Washington following the 1978 protest march called "the longest walk."



### THE PRIMARY SOURCE

by Norman Myers

In *The Primary Source* (1984) Norman Myers carefully describes and analyzes life in the rainforest as well as the forces that threaten to wipe it out in the next few decades. If you need to look up something specific about tropical deforestation, or find out where to look it up, *The Primary Source* is the book for you. In fact, it could well be the most comprehensive and up-to-date book written on tropical rainforests. Not only will this book give you considerable knowledge about tropical rainforests, but it will also inspire you to learn more about, visit, and protect these miraculous ecosystems which Dr. Myers so passionately and eloquently writes about.

To order *The Primary Source*, send \$10.00 to the Rainforest Action Network, 466 Green Street, Suite 300, San Francisco, CA 94133.



### HOOFPRIENTS IN THE FOREST

by Douglas R. Shane

In *Hooftprints on the Forest* (1986) Douglas Shane examines the rapid deforestation of tropical rainforests by the beef cattle industry in 17 Latin American nations. The role of governments, businesses, and other organizations, both regional and transnational, involved in the ranching explosion, as well as the process underlying the mass conversion of forest into pasture, is fully described in this interesting and informative book.

To order *Hooftprints on the Forest*, send \$22.00 plus \$2.50 for postage and handling to Ishi Publications, 210 South 13th St., Philadelphia, PA 19107.

*Gardeners of Eden—A Case Study in Development*, about a World Bank-funded cattle project in Botswana.

### COSTA RICAN NATURAL HISTORY

edited by Daniel H. Janzen

This is an extraordinary, virtually unique work that will make an important contribution to our understanding of tropical biology not only in Costa Rica but throughout the world. The tremendous amount of original, previously unpublished, firsthand information is remarkable. —Peter H. Raven, Director Missouri Botanical Garden

Some of the world's most distinguished tropical biologists gather here to explore the rich biological diversity of the tropics. *Costa Rican Natural History* is a synthesis of what is known about a well-studied area, an introduction to tropical biology, a field guide to the flora and fauna of Central America and a good part of South

America, and a source of comparative data for tropical biologists working in other parts of the world. The information is presented in such a way that the reader has a rare opportunity to get inside the minds of first-rate natural historians as they collect impressions, assess them, and try to make sense of their observations.

The book begins with lucid descriptions of the physical environment in which Costa Rican organisms have evolved and on which they now depend. Following a history of biological research in Costa Rica, the paleogeography and biogeography, climate, geology, and soils are discussed. The major section of the book consists of detailed discussions of agricultural plants and animals, natural vegetation, reptiles and amphibians, mammals, birds, and insects of Costa Rica. Each chapter includes a thorough introduction with an extensive list of



references and a key or list of the species of each group where available. The most important, interesting, or conspicuous species—more than 300 of them—are examined at length, with information about classification, physical description, behavior, habitat requirements, and life history. Lists of references and photographs or drawings accompany the species accounts.

More than two-thirds of all species of living things on earth are found in the tropics. Because of the alarming rate at which tropical forests are being destroyed, there is a pressing need to

increase our knowledge before more of the organisms living there become extinct. *Costa Rican Natural History* not only is a starting point, it will set the standard for future works. The book is a splendidly illustrated compendium of information, and it has been sensibly designed and manufactured so that it is readable, portable, and can withstand the heat and insects of the tropics.

Daniel H. Janzen is professor of biology at the University of Pennsylvania and an associate member of the Museo Nacional de Costa Rica.

### CHANGE IN THE AMAZON BASIN

Volume 1: *Man's Impact on Forests and Rivers*

Volume 2: *The Frontier After a Decade of Colonisation*

edited by John Hemming

All the countries sharing Amazonia have become more involved in their own development programmes for the region during the last 25 years although scale and priorities have varied. While the Andean states have been slowly edging their way down into the foothill zones for the most part, Brazil has taken huge strides through the length and breadth of the Amazon basin, its "last great frontier". Brazil's regional planning area, known as the *Amazonia Legal*, covers nearly 60 percent of the country, a northern sweep of tropical rain forest and savanna that has long been one of the world's least known and most sparsely populated areas.

These two volumes contain the papers presented at the large symposium on change in the Amazon Basin, organized by the Royal Geographical Society and held in 1982 at the University of Manchester as part of the 44th International Congress of Americanists. Brazil's ambitious development programme got under way in the 1960s and was based on new highways and colonization, on giant mining and power projects, and, not least, on a major expansion of cattle ranching. As the work rushed ahead, international

debate raged over the ecological, social and economic issues involved, particularly the effects of widespread deforestation on the physical environment and on the scattered Indian communities. The nature of this debate is well recorded here. Volume 1 reviews some of the giant schemes which are among the largest in the world, notably the Tucuruí hydroelectric power site on the lower Tocantins river, the Carajas iron ore strip-mining, railway and port project, and the diversified regional development programme for Rondonia and Mato Grosso. As Goodland points out in charting events to date, the destructive aspects of the development programme for Amazonia have been far better documented than the progress achieved, and both he and Skilling provide clear, balanced assessments of the opportunities and the constraints—the gains that in time can reasonably be expected, and the environmental costs. Mendes argues for the need to accommodate large enterprises and small producers within the overall planning scheme. Much has still to be learned, mapped and evaluated. The problems of overestimating the immediate social and economic advantages and underestimating the distances and difficulties involved are well known to those who have worked in these regions; here, they are exemplified in the individual contributions on soils, hydrology, the effects of deforestation, and Amazonia's agricultural potential, real or supposed.

Most of the studies are concerned with Brazil which, by the mid-1970s, had heeded the message to slow down. National and international concern, the oil crisis, inflation, and increasing environmental research all helped to reduce the pace of Brazil's development programme, and to modify some of its initial objectives. Government incentives for large-scale forest clearance in order to expand ranching were stopped. It also became clear that the ambitious scheme to colonize the great trail-blazing, east-west Transamazonia Highway with an estimated 100,000 families drawn mainly from the poverty-stricken north-east, had failed. The most successful approaches to Amazonia are from the south, not the east. Investment, markets, the busiest highways, and the most successful new colonists all originate in the south and south-east, accelerating growth on the southern rim of the Amazon basin, and underlining the vital importance of north-south linkage to the selective development of Brazilian Amazonia as a whole.

Volume 2 focuses on case studies of colonization and on some of the problems of the indigenous peoples. The first three papers set the scene admirably by taking the broad view and combining thorough, wide-ranging analyses of policy and demographic change with clear maps and detailed statistical support. Thus Klempner and Volbeda, and then Benchimol, deal with changes in the size and distribution

of population throughout the Amazon region of Brazil, while Mougeot considers alternative migration targets and the closing frontier.

Although the scope and quality of the papers vary, they reveal the wide range of interest in this area, and provide a timely and comprehensive examination of the changes taking place in Amazonia. The general bibliographies are useful though they lack some of the relevant material published in, and since, 1982. Nearly all the papers read at the symposium are presented here in full. Given the close connection and in some cases the overlap between the main themes, as well as the high cost of this two-volume publication, it would have been advantageous to have been able to purchase a single integrated volume, with selected papers in full and a larger number in summary form.

Brazilians often compare their "resource frontier" in Amazonia to the great Canadian Northland and, in its own way, Amazonia must now come in from the cold. Although Amazonia's resources are sometimes exaggerated, they are nevertheless substantial, especially its energy potential, minerals, timber, and tree crops. The task, therefore, as contributors remind us, is to try to harmonize development and environmental objectives—to pursue the economic possibilities of the region while setting aside National Parks and adequate reserved areas, thus affording protection to the physical surroundings and to the well-being of the indigenous population.

J. Valerie Fifer